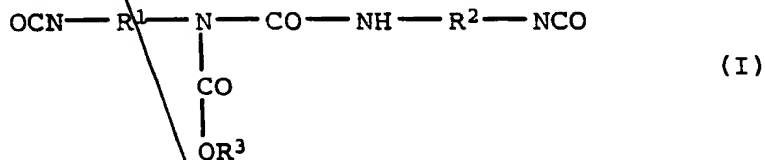


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THE FOLLOWING IS THE ENGLISH TRANSLATION OF THE ANNEXES TO THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT : AMENDED SHEETS (Pages 14, 15, 16, and 17).

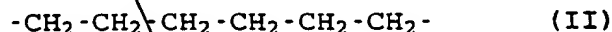
We claim:

1. A diisocyanate of the formula (I)



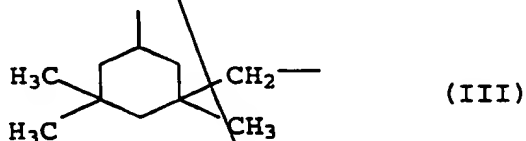
in which the radicals have the following meanings:

$\text{R}^1, \text{R}^2$ : both radicals a radical of the formula (II)



(diisocyanates Ia)

one radical a radical of the formula (II) and the other radical a radical of the formula (III)



(diisocyanates Ib)

both radicals a radical of the formula (III) (diisocyanates Ic),

$\text{R}^3$ : - a 5- or 6-membered cycloalkyl radical in which up to 3 hydrogen atoms may be substituted by  $\text{C}_1$ - $\text{C}_4$ -alkyl radicals and one or two methylene units may be substituted by an oxygen atom and/or a tertiary nitrogen atom which additionally carries a  $\text{C}_1$ - $\text{C}_4$ -alkyl radical, or

- a  $\text{C}_1$ - $\text{C}_4$ -alkyl radical in which one hydrogen atom is substituted by a 5- or 6-membered cycloalkyl radical in which up to 3 hydrogen atoms may be substituted by  $\text{C}_1$ - $\text{C}_4$ -alkyl radicals and one or two methylene units may be substituted by an oxygen atom and/or a tertiary nitrogen atom which additionally carries a  $\text{C}_1$ - $\text{C}_4$ -alkyl radical; a pyrrolidone radical or a morpholine radical, where in the case of the two last-mentioned radicals the nitrogen atom is attached to the alkyl radical.

2. A diisocyanate as claimed in claim 1, in which the radical  $R^3$  is derived from an alcohol selected from the group consisting of cyclohexanol, cyclohexanemethanol, cyclopentanol, cyclopentanemethanol, 3,3,5-trimethylcyclohexanol, menthol,  
 5 norborneol, N-methyl-4-hydroxypiperidine, 4-(2-hydroxyethyl)-morpholine and 4-(2-hydroxyethyl)pyrrolidone.

3. A mixture comprising

- 10 - diisocyanates (Ia), (Ib) and/or (Ic),  
 - urethanes of the formula (IV)

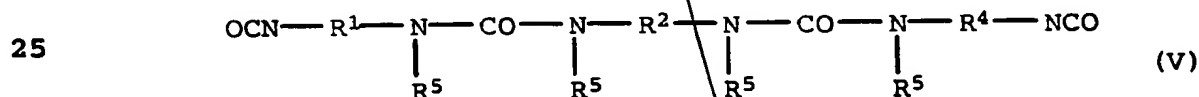


- 15 in which the radicals  $R^1$  and  $R^3$  may have the following meanings:

$R^1$ : a radical of the formula (II) or (III)

- 20  $R^3$ : the meaning indicated in claim 1;

- diisocyanates of the formula (V)



in which the radicals  $R^1$ ,  $R^2$ ,  $R^4$  and  $R^5$  may have the following meanings:

- 30  $R^1$ ,  $R^2$ ,  $R^4$ : the meaning indicated for  $R^1$  in formula (I),

- $R^5$ : 2 of the total of 4 radicals are hydrogen and the other two radicals are a radical of the formula (VI)
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- 40 with the radicals  $R^5$  having the same meaning being separated by the unit  $R^2$ ; and

- isocyanurates composed of 3 molecules selected from the group consisting of isophorone diisocyanate and hexamethylene diisocyanate (monoisocyanurates VII).
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4. A mixture as claimed in claim 3, where the weight ratio of diisocyanates (I) to monoisocyanurates (VII) is from 10:1 to 1:10.
5. A mixture as claimed in claim 3 or 4, where the proportion of isophorone diisocyanate or hexamethylene diisocyanate is less than 0.5% by weight.
6. A mixture as claimed in any of claims 3 to 5, where the sum of the proportions of the diisocyanates (Ia), (Ib), (Ic), (V), the urethane (IV) and the isocyanurate (VII) is from 10 to 100% by weight.
7. A process for preparing a mixture as claimed in any of claims 3 to 6, which comprises reacting
- (i) isophorone diisocyanate, hexamethylene diisocyanate or a mixture of these isocyanates in the presence of a catalyst with a
- 5- or 6-membered cycloaliphatic alcohol in which up to 3 hydrogen atoms attached to one carbon atom may be substituted by C<sub>1</sub>-C<sub>4</sub>-alkyl radicals and one or two methylene units may be substituted by an oxygen atom and/or a tertiary nitrogen atom which additionally carries a C<sub>1</sub>-C<sub>4</sub>-alkyl radical, or
  - C<sub>1</sub>-C<sub>4</sub>-alkyl alcohol in which one hydrogen atom attached to a carbon atom is substituted by a 5- or 6-membered cycloalkyl radical in which up to 3 hydrogen atoms may be substituted by C<sub>1</sub>-C<sub>4</sub>-alkyl radicals and one or two methylene units may be substituted by an oxygen atom and/or a tertiary nitrogen atom which additionally carries a C<sub>1</sub>-C<sub>4</sub>-alkyl radical; a pyrrolidone radical or morpholine radical, where in the case of the two last-mentioned radicals the nitrogen atom is attached to the alkyl radical of the alcohol;
- the molar ratio of said isocyanates to said monoalcohol being from 1.5:1 to 20:1,
- (ii) deactivating the catalyst and
- (iii) removing any unreacted isocyanate.

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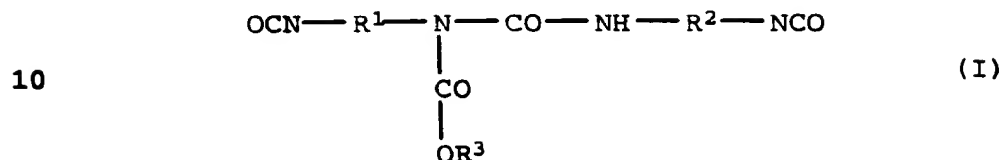
8. A process as claimed in claim 7, wherein the reaction is continued until the resulting reaction product after removing any unreacted isophorone diisocyanate or hexamethylene diisocyanate still present has a viscosity of from 100 to 10,000 mPas measured in accordance with ISO 3219, Annex B.
9. A two-component coating composition comprising a compound which carries polyisocyanate-reactive groups (component A) and a compound of the formula (I) (component B).
10. A method of coating articles which comprises
- preparing a coating composition as claimed in claim 9 by mixing components (A) and (B) and
  - applying the coating composition in sheetlike manner to an article within 12 h of the preparation of said composition.
11. A coated article produced as claimed in claim 10.

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Diisocyanates with allophanate groups derived from alicyclic alcohols

# 5 Abstract

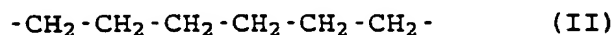
Diisocyanates of the formula (I)



in which the radicals have the following meaning:

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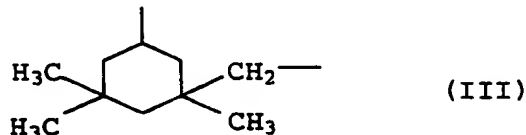
$\text{R}^1, \text{R}^2$ : - both radicals a radical of the formula (II)



20 (diisocyanates Ia)

- one radical a radical of the formula (II) and the other radical a radical of the formula (III)

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(diisocyanates Ib)

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- both radicals a radical of the formula (III) (diisocyanates Ic),

$\text{R}^3$ : - a 5- or 6-membered cycloalkyl radical in which up to 3 hydrogen atoms may be substituted by  $\text{C}_1$ - $\text{C}_4$ -alkyl radicals and one or two methylene units may be substituted by an oxygen atom and/or a tertiary nitrogen atom which additionally carries a  $\text{C}_1$ - $\text{C}_4$ -alkyl radical, or

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- a  $\text{C}_1$ - $\text{C}_4$ -alkyl radical in which one hydrogen atom is substituted by a 5- or 6-membered cycloalkyl radical in which up to 3 hydrogen atoms may be substituted by  $\text{C}_1$ - $\text{C}_4$ -alkyl radicals and one or two methylene units may be substituted by an oxygen atom and/or a tertiary nitrogen atom which additionally carries a  $\text{C}_1$ - $\text{C}_4$ -alkyl radical; a pyrrolidone radical or a morpholine radical, where in the case of the two last-mentioned radicals the nitrogen atom is attached to the alkyl radical.

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